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| 09/954,663 | 09/12/2001 | James D. Lyle | SII-300 [SIMG0077] | 7574 |
| 60974 7590 10/20/2008 GIRARD & EQUITZ LLP 400 MONTGOMERY STREET SUITE 1110 SAN FRANCISCO, CA 94104 | | | | |
| EXAMINER | | | | |
| VLAHOS, SOPHIA | | | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/954,663

Applicant(s)

LYLE ET AL.

Examiner

SOPHIA VLAHOS

Art Unit

2611

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 7/01/08.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) See Continuation Sheet is/are allowed.
- 6) ☒ Claim(s) 22, 35, 106, 107 and 110 is/are rejected.
- 7) ☒ Claim(s) 108-109 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Continuation of Disposition of Claims: Claims pending in the application are 3,6,7,11,13,14,22-32,34,35,37-40,44,53-55,58,60-64,73,75,77,80,96-98,100,102-110,116-124,126-129 and 131-143.

Continuation of Disposition of Claims: Claims allowed are 3,6,7,11,13,14,23-32,34,37-40,44,45,50,53-55,58,60-64,73,75,77,80,96-98,100,102-105,116-124,126-129 and 131-143.

DETAILED ACTION

1. Applicant's arguments filed 7/01/08 addressing the rejection of claims 22, 106-107, 110 have been fully considered but they are not persuasive.

Regarding claim 22, Applicant argues (page 30, ¶6):

"Mair discloses a binary data encoding method which is a modification of conventional TMDS-encoding, and which replaces some of the DC balancing bits of conventional TMDS code words with bits indicative of auxiliary (e.g., audio) data. Code word sequences generated in accordance with Mair's method do include DC balancing bits, and are DC balanced bit sequences. This is explicitly taught by Mair at col. 3, lines 6-19. Accordingly, Mair teaches away from modulating the DC disparity of a code word sequence and thus teaches away from the invention of claim 22. Mair neither teaches nor suggests circuitry (in a transmitter) configured for generating an output signal which modulates DC disparity of a channel of a TMDS-like link as recited in claim 22."

Examiner Response:

The fact that Mair teaches using DC balancing control bits, does not necessarily mean the code word sequences are DC balanced bit sequences. In column 2, lines 6-11 of Mair, it is explained, that a DC balancing bit is used to DC balance a code word or in a worse case not add to the (existing) DC disparity (the latter case implying the presence of DC disparity). Therefore, Mair does not teach away from modulating the

DC disparity of a code word sequence. For at least the above reason, the rejection of claim 22 is maintained.

Regarding claim 106, Applicant argues (page 34, ¶13, continuing to page 35):

Pasqualino fails to teach or suggest asserting or transmitting video data only during periods (separated by blanking intervals) each having duration within a first range, and asserting or transmitting auxiliary data only during other periods (also separated by blanking intervals) each having duration within a second range distinct from the first range. Pasqualino neither teaches nor suggests that any of its periods for "Audio Transport" (as shown in Pasqualino's Fig. 7) must have (or desirably have) duration in a range that is distinct from the duration of any of the periods (active video periods) during which a transmitter transmits video data.

Examiner Response:

Claim 106 recites: "...first periods each having duration within a first range and second periods each having duration within a second range distinct from the first range..."The reference to Pasqualino teaches transmission of video data, during first periods (determined when DE and A_DE signals are both high). With respect to the first periods each having duration within a first range, the Pasqualino reference suggests a first range associated with the first period(s), and the first range corresponds to a range determined by switching signals DE or A_DE. Fig. 7 shows boundaries of a first time period for transmitting video data, as dashed lines, at ideal switching points (at Pixel clock 0 for example). In reality, digital signals such as DE and A_DE (and the Pixel Clk)

exhibit non-ideal characteristics such as jitter, and jitter makes transitions of signal edges appear advanced or delayed compared to an ideal transition location, creating a range of transition edges.

Based on the same reasoning, the second periods occurring when control signal DE is low and A_DE is high, have a second associated range, also caused by jittery signals, as explained for the case of the first periods.

Examiner asserts the reference to Pasqualino, teaching and/or suggesting "first periods each having duration within a first range and second periods each having duration within a second range".

With respect to the limitation "second range distinct from the first range", Applicant argues (page 35): "The cited teaching of Pasqualino to transmit 24 bit words of video data and 16 bit words of audio data is irrelevant to the issue as to whether Pasqualino teaches transmission of video data only during periods each having duration within a first range and transmission of auxiliary data only during periods each having duration within a second range distinct from the first range, especially since Pasqualino teaches transmission of a line header during each period in which it transmits auxiliary data."

Examiner Response:

The cited portion of Pasqualino ¶0101 and Fig. 26 are relevant to the limitation of claim 106, "second range distinct from the first range" since it shows that the 24 bit wide video data transmitted during first periods (within a first range duration caused by jitter), is

distinct (larger) than a second range associated with a second period when audio data are transmitted (16 bit wide second period within a second range duration caused by jitter).

Applicant further argues (page 34 end of ¶13 through page 35):

“During the periods in which Pasqualino transmits auxiliary data (e.g. the Period of Audio Transport” of Fig. 7), Pasqualino also transmits a line header (e.g., the “LineHdr” of Fig. 7 or line header 540 of Fig. 5).”

Examiner Response:

It is not entirely clear why Applicant brings up the “LineHdr” portion which is transmitted during the period for Audio Transport, since the second period(s) in the Office Action correspond to the Periods for Audio data Transport.

2. Applicant's arguments, see pages 31-33, filed 7/01/08, with respect to the rejection(s) of claim(s) 35 under 35 U.S.C. 103(a) as being unpatentable over Mair et al. (U.S. 6,912,008) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Watkins et al. (U.S. 6,507,672).

For the sake of identifying which portion of Applicants argument is persuasive, the following paragraphs have been included:

Regarding claim 35, Applicant argues (page 31, ¶¶1-3):

"Mair teaching does not pertain to generation of stream of binary data words that determine an analog auxiliary signal (as well as video data). Nor does Mair teach or suggest generating an output (by encoding a stream of video data bits and a stream of auxiliary data bits) that determines an analog auxiliary signal."

Examiner Response:

Mair teaches a method of adding audio data to a high speed serial video link (column 3, lines 30-33). Column 4, lines 13-14, explains that the DVI standard expands 8-bit video data to a 10-bit serial stream (including an added DC balancing bit, column 4, lines 27-30)). Column 5, lines 5-44, explains that a DC balance bit is replaced with auxiliary data such as audio data.

With respect to Applicants' argument: "Nor does Mair teach or suggest generating an output (by encoding a stream of video data bits and a stream of auxiliary data bits) that determines an analog auxiliary signal." Claim 35 does not recite encoding a stream of video data bits and a stream of auxiliary data bits. Instead claim 35, recites: "generating an output signal" and "wherein the output signal is indicative of a stream of binary data words that determine an analog auxiliary signal as well as the video data...". The output signal in the system of Mair et al. is the generated word 304, which comprises video and auxiliary (audio) information. Furthermore it is understood by the Examiner that the auxiliary information of the Mair is a digital auxiliary (audio) signal.

Applicant argues: "It cannot be reasonably contended that Mair's DC balanced binary bit sequence would inherently determine an analog auxiliary signal indicative of the auxiliary data bits it encodes, as well as a sequence of video data bits, or that such a DC balanced binary bit sequence could be generated in such a manner as to determine an analog auxiliary (e.g. analog auxiliary audio) signal indicative of the auxiliary data bits that it encodes as well as a sequence of video data bits. Nor can it reasonably be contended that "it would have been obvious" to one of ordinary skill in the art to modify Mair's teachings to reach the invention of claim 35."

Examiner Response:

To use a better rationale/reasoning in the obviousness type rejection of claim 35, the secondary reference to Watkins et al. (U.S. 6,507,672) is introduced.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claim 22 is rejected under 35 U.S.C. 102(e) as being anticipated by Mair et al., (U.S. 6,912,008).

With respect to claim 22, Mair et al., disclose: an input for receiving auxiliary data (column 3, lines 3-9, 20-21, Fig. 3B, word 304 s9 bit is an auxiliary bit , see column 5, lines 14-15, bit S9 and Fig. 5 the system used to implement the encoding of Fig. 3, column 6, lines 22-36); an output configured to be coupled to a channel of the link and circuitry coupled to the input and configured for generating an output signal in response to said auxiliary data (Fig. 5, blocks 502, 506, column 6 lines 22-35, and column 3, lines 1-23, column 5, lines 5-44) and asserting the output signal to the output for transmission over the channel, wherein the output signal modulates DC disparity of the channel and is indicative of auxiliary data, wherein the auxiliary data are audio data (see column 2, lines 9-11 where the DC balancing bit in a worse case does not add to the DC disparity of a current character, and column 3, lines 6-22).

6. Claims 106-107, 110 are rejected under 35 U.S.C. 102(e) as being anticipated by Pasqualino et al., (U.S. 2002/0163598).

With respect to claim 106, Pasqualino discloses: a transmitter (Fig 2. transmitter, receiving video and audio (auxiliary) data over blocks 215 and 217 respectively paragraph [0014]); a receiver (Fig. 3, receiver, paragraph [0015]); and a TMDS-like communication link between the transmitter and the receiver, wherein "TMDS" denotes "transition minimized differential signaling," (Fig. 2 right side, TMDS link) the link comprises at least one video channel (see Fig. 7, video data of channel 1), the

transmitter is configured to transmit video data to the receiver over the link during data transmission periods separated by blanking intervals (see Fig. 7, video data, followed by a blanking period, followed by period for audio transport) , wherein the data transmission periods include first periods each having duration within a first range (see Fig.7, video data transmission has duration within a range when both DE and A_DE signals are high (since it is understood that small delays occur when signals switch states from low to high caused by jitter, creating a range of durations), see paragraph [0090]) and second periods each having duration within a second range distinct from the first range (Fig. 7, when see Audio Data transmission period, when DE is low and A_DE is high (that also has a range of durations since the ending transition is also jittery), paragraph [0091], see also distinct duration of first periods and second periods, paragraph [0087] where the video data are 24 bit words and the audio data are 16 bit words and Fig. 26 shows the durations of the two periods as being distinct, and Fig. 7 shows the same pixel clock used to pack the audio and video data), the transmitter is configured to transmit the video data to the receiver over the video channel only during the first periods (Fig. 7, column video data is transmitted during the first periods(when DE and A_DE are both high) and to transmit auxiliary data to the receiver over the video channel only during the second periods (Fig. 7 see Audio data transport period), the receiver is configured to recognize each of the second periods and operate in an auxiliary data reception mode during each of the second periods, and the receiver is configured to recognize each of the first periods and operate in a video data reception mode during each of the first periods (Fig. 3 the receiver, extracts A_DE and DE signals

to unpack the data received over the link, see that receiver of Fig. 3 performs a processing opposite to the one preformed by transmitted to pack that video and audio data).

With respect to claim 107 Pasqualino discloses: wherein each of the first periods has duration greater than a first duration and each of the second periods has duration not greater than the first duration (see above rejection of claim 106 where a video data word is a 24 bit word greater than the 16 bit audio bit word, and the audio data is not greater than 16 bit).

With respect to claim 110, claim 110 is rejected based on a rationale similar to the one used to reject claim 106 above.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mair et al., (U.S. 6,912,008) in view of Watkins et al. (U.S. 6,507,672).

With respect to claim 35, Mair et al. disclose: a first input for receiving auxiliary data (column 3, lines 3-9, 20-21, Fig. 3B, word 304 s9 bit is an auxiliary bit, see column

5, lines 14-15, bit S9 and Fig. 5 the system used to implement the encoding of Fig. 3, column 6, lines 22-36); at least one video input for receiving video data (system of Fig. 5, implementing the DVI encoding of Fig. 3 see column 4, lines 7-14, 62-63, see transmission of (received) video data); circuitry coupled (Fig. 5, blocks 502, 506 of transmitting side) to the first input and to the video input and configured for generating an output signal in response to the auxiliary data and asserting the output signal to the output for transmission over the channel (Fig. 5, blocks 502, 506, column 6 lines 22-35, and column 3, lines 1-23, column 5, lines 5-44), wherein the output signal is indicative of a stream of binary data words that determine an auxiliary signal as well as the video data, wherein the auxiliary signal is indicative of the auxiliary data (column 3, lines 5-18, column 4, lines 6-14, 63-64).

Mair et al. do not expressly teach: an analog auxiliary signal.

In the field of transmitting/receiving auxiliary data, Watkins et al disclose: an analog auxiliary signal (column 12, lines 34-39, a digital audio stream is converted to an audio analog signal (analog auxiliary) signal).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the system of Mair et al. based on the teachings of Watkins et al. so that the digital auxiliary data of Mair et al. determines analog auxiliary data (the digital audio, determines the analog audio signal out of the speaker) so that the digital auxiliary signal which is an audio signal is output via a speaker to a listener (Watkins et al. column 12, lines 34-39).

Allowable Subject Matter

9. Claims 3, 6, 7, 11, 13, 14, 23-27, 28, 29-30, 31-32, 34, 37-38, 39-40, 44-45, 50, 53-55, 58, 60-62, 63, 64, 73, 75, 77, 80, 96, 97-98, 100, 102, 103, 104, 105, 116-117, 118-119, 120-121, 122, 123, 124, 126-129, 131, 132-141, 142-143 are allowed.
10. Claims 108-109 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SOPHIA VLAHOS whose telephone number is (571)272-5507. The examiner can normally be reached on MTWRF 8:30-17:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammed Ghayour can be reached on 571 272 3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SOPHIA VLAHOS/
Examiner, Art Unit 2611
10/21/2008

/Chieh M Fan/
Supervisory Patent Examiner, Art Unit 2611